

**MESTRADO**  
**ECONOMIA E GESTÃO DE CIÊNCIA**  
**TECNOLOGIA E INOVAÇÃO**

**TRABALHO FINAL DE MESTRADO**  
**DISSERTAÇÃO**

TRANSNATIONAL COOPERATION IN THE EUROPEAN  
RESEARCH AREA: OPPORTUNITIES AND CHALLENGES  
FROM THE MANAGEMENT OF SCIENTIFIC RESEARCH  
FUNDING INITIATIVES

CARLOS ALBERTO FERNANDES DE ALMEIDA PEREIRA

OUTUBRO - 2016

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**Abstract**

The European Research Area (ERA), 'single market' for research and researchers, intends to be the premier location to share data, compare results, carry out multi-disciplinary studies, transfer and protect new scientific knowledge and gain access to centres of excellence and state-of-the-art equipment. It is organized on the basis of three fundamental principles: the open access, the mobility of researchers and the coordination of the national scientific research programmes.

In the context of the transnational cooperation, an attempt will be made to identify and discuss the possibilities of organizational strategy and financial exploitation, resulting from an active participation in the ERA research funding initiatives, that are offered to FCT and that may come to be offered to other national organizations with purposes related to the financial support and management of Science, Technology & Innovation programmes.

**Key-words:** European Research Area; ERA-NETs; science and technology management; transnational cooperation.

## **Resumo**

O Espaço Europeu de Investigação (EEI), “mercado-único” para a investigação e os investigadores, constitui-se como o local privilegiado para a partilha de dados, a comparação de resultados, o desenvolvimento de estudos multidisciplinares, a transferência e proteção do conhecimento científico novo, e a possibilidade de acesso a centros de excelência e equipamento de ponta. Estrutura-se com base em três princípios fundamentais: o acesso aberto, a mobilidade de investigadores, a coordenação dos programas nacionais de investigação.

No âmbito da cooperação transnacional, procurar-se-á identificar e discutir as possibilidades, em termos de estratégia organizacional e exploração financeira, decorrentes de uma participação ativa nas iniciativas de financiamento da investigação do EEI, que se oferecem à FCT e se poderão vir a oferecer a outras organizações nacionais com propósitos relacionados com o apoio financeiro e a gestão de programas de Ciência, Tecnologia & Inovação.

**Palavras-chave:** cooperação transnacional; ERA-NETs; Espaço Europeu de Investigação; gestão de ciência e tecnologia.

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## **1. Introduction**

### **1.1. Objectives**

Departing from the broad assumption that «Europe is the world's largest producer of knowledge» (Moedas, 2016: 7), taking into account the rhetoric, articulated by its political actors, that «the future of Europe is Science» (Malik *et al*, 2014), and considering the pressing appeal that the European Union needs to act urgently and coherently to achieve the scale of effort and impact needed to address grand challenges with the limited public research funds available (Malik *et al*, 2014), the main objective of this dissertation is to identify and discuss, in the context of the transnational cooperation in the European Research Area (ERA), the possibilities of organizational strategy and financial exploitation, arising from an active participation in the ERA funding initiatives, that are offered to FCT and that may come to be available to other national organizations with purposes related to the financial support and management of Science, Technology & Innovation (ST&I) programmes.

This work will mainly focus the initiatives and instruments of joint transnational (innovative) research funding, namely the ERA-NETs and the Coordination and Support Actions (CSAs), and, collaterally, the Joint Programming Initiatives (JPIs) for which the ERA-NETs (Cofund) and CSAs (that can develop completely autonomous programmes) act as supporting mechanisms for the financial provision of innovative transnational research proposals, and for the alignment of the national strategic research agendas. Joint Technology Initiatives (JTIs), which are means to implement the Strategic Research Agendas (SRAs) of a limited number of European Technology Platforms (ETPs), but without structural support from the European Commission (EC) for the networking activities or for the launching of joint transnational calls, and bilateral cooperation instruments, also not eligible for structural supporting from the EC, will not be considered in our reflection. European Joint Programme initiatives (EJPs), recent co-fund actions of the Horizon 2020, designed to support coordinated national research and innovation programmes, and of which there are no conclusive data at the moment, will be similarly left out of consideration.

An analysis of the involvement of the Portuguese scientific community in the ERA scheme would reveal that the level of participation in the Calls launched under the ERA-NETs, CSAs and JPIs is already quite substantial (as evidenced by the current active participation in 54 ERA initiatives), and the success rates are also significant<sup>1</sup>, constituting these aspects solid indicators of what we consider a structured engagement that has been done in this context in the last years.

Nevertheless, concerning this process, at the moment the entire operationalization of the participation of Portugal in the ERA initiatives is centralized in FCT, IP<sup>2</sup>. Acting simultaneously as Programme Owner<sup>3</sup> and Programme Manager<sup>4</sup>, FCT is the only national organization operating in this regard, through the international representation and the financial support of the programmes and initiatives in which Portugal is involved. FCT also assumes the accomplishment of a whole set of actions, as the alignment of the national research agendas, and additional activities to the launch of joint transnational calls.

As we consider that significant advantages may result from an increasing financial investment and “in kind” commitment strategy in these international instruments by the national funding agency FCT (which, incidentally, and after several years of an increasing sustained investment, is preparing a gradual reduction strategy), and given that we also believe that significant opportunities and challenges for the Portuguese actors of the national research and innovation system may arise from the assumption of responsibilities on the management of scientific research funding initiatives, both in financial, organizational strategy, and internationalization-related factor terms,

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<sup>1</sup> At least in relative terms, given that the absolute success rate of the applications for these instruments is, in general, quite low (circa 4%), as a result of the still restricted investment of the national agencies.

<sup>2</sup> Fundação para a Ciência e a Tecnologia, IP (FCT) is the national funding agency for science and technology, in all scientific domains, under responsibility of the Ministry for Science, Technology and Higher Education. FCT's mission is to continuously promote the advancement of knowledge in science and technology in Portugal, attain the highest international standards in quality and competitiveness, and encourage its dissemination and active role in society and in economic growth. FCT pursues its mission by funding fellowships, studentships and research contracts for scientists, research projects, internationally competitive research centres and state-of-the-art infrastructures, via competitive calls with international peer-review. FCT ensures Portugal's participation in international scientific organizations, fosters the participation of the scientific community in international projects, and promotes knowledge transfer between R&D centres and industry. FCT also provides the institutional framework for the Research Councils. FCT's budget encompasses funds from the Portuguese state budget and European structural funds (source: FCT's website – [www.fct.pt](http://www.fct.pt)).

<sup>3</sup> Programme Owners are typically national/regional ministries/authorities responsible for defining, financing or managing research programmes carried out at national or regional level.

<sup>4</sup> Programme Managers are usually research councils or funding agencies or other national or regional organizations that implement research programmes under the supervision of the programme owners.



by other national research funding institutions, we will try to signalize, via a qualitative and quantitative analysis, these perceived opportunities and challenges.

## **1.2. Choice of the theme and structure**

The choice of this theme is substantially based in the straight contact with the above mentioned initiatives and instruments, which significantly contribute for the operationalization of the policies of the ERA. In our professional incumbencies as Science Officer at the Department of International Relations (DRI) of FCT, we directly operate with the management of ERA-NETs, CSAs and JPIs, in Social Sciences and Humanities, Neurosciences and Biotechnologies. We are also directly involved in high-level strategic decision boards, via the participation in the «Network», «Governing» and «Executive» Boards of several ERA-NETs and JPIs.

Among other operational incumbencies, we have been personally involved in several responsibilities, as the management of Joint Transnational Call Secretariats, and the leadership of Work Packages<sup>5</sup> and Tasks. The close interaction with the actors and programmes of these initiatives and instruments provide insights on the challenges and opportunities for the national scientific community and for the national organizations.

Our Masters dissertation will consist of 6 main chapters. After this introduction, indicating the objectives and the choice of the theme and structure, the second chapter expounds on the idea of the European Research Area, addressing its historical background, its initiatives, and some facts and figures of Portugal's participation in ERA. The third chapter, in which is attempted to systematize the problem statement and the research questions, addresses the opportunities and challenges which may arise from the pursuing or increment in the ERA programmes and initiatives, via FCT's involvement; the possibilities, challenges and opportunities of the participation of other research funding institutions of the STNS are also discussed. The fourth chapter, in turn, dedicated

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<sup>5</sup> In the ERA context, a Work Package can be defined as a unit of labour clearly distinguishable from other units, with scheduled start and completion dates, interim milestones, and a relatively short time span subdivided to facilitate measurement of the work performed.

to the methodological approach and to the empirical application, pursues to outline the rationale of the establishment of an ERA-NET Cofund, approaching different issues such as the organization of the activities, the mandatory conditions for the implementation of the co-funded call, and the financial provisions on the use of the EC «top-up» contribution. By employing a theoretical simulation, will be sought to discern the descriptive model of the process of accessing the EC funding, in the attempt to account the financial and non-financial advantages of the participation in the initiatives of ERA. A brief discussion of the results, in which other relevant issues will be raised, is conducted in the fifth chapter. The main conclusions are presented in the final chapter.

## **2. Literature Review**

### **2.1. The European Research Area**

If the conceptual definition of the European Research Area can be obtained in wide textual documentation, the existing bibliography in the context of the international cooperation in ERA is confined, mostly, to technical reports, commonly produced by senior executives under the aegis of the EC. These reports exhibit, ordinarily, qualitative assessments of the programmes and initiatives operationalized, along with statistical/geometric data.

Not intending to slide into superfluous lyricism, it is fair to say that, upstream, «ERA is an idea that became a policy priority» (Busquin, 2015: 22). In more concrete terms, ERA can be described as «a ‘single market’ for research and researchers, which should make possible to share data, compare results, carry out multi-disciplinary studies, transfer and protect new scientific knowledge and gain access to centres of excellence and state-of-the-art equipment» (Finnegan, 2015: 25).

To accomplish this ambition, three principles underlie the spirit of ERA: the open access (free movement of knowledge); the mobility of researchers (unrestricted movement of scientists); and the coordination of national research (Harper *et al*, 2008). It is expected that the outcomes of the research funded under the programme Horizon 2020 (H2020)<sup>6</sup> will be accessible without

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<sup>6</sup> Successor of the consecutive Framework Programmes, H2020 is the biggest European Union Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020). Coupling research and innovation, Horizon 2020 puts all its emphasis on excellent science, industrial leadership and societal

restrictions to all, and that scientists, companies and even the public will be able to access the ultimate breakthroughs in science and apply its findings; that instruments which provide information and support services to researchers to help them take up jobs outside their home countries (e.g. EURAXESS) can be fully operational; and that coordinating efforts regarding national research priorities in different countries can bring benefits on pooling efforts, tackling major problems (too large for single Member States to address on its own), and helping on the reduction of unnecessary duplication, ensuring that scarce resources are spent efficiently (Finnegan, 2015: 25). And five priorities are categorically defined: optimal transnational co-operation and competition; more effective national research systems; optimal circulation, access to, and transfer of, scientific knowledge; open labor market for researchers; gender equality and gender mainstreaming in research (Harper *et al*, 2008).

The operationalization of the ideals that contribute to the completion of the priorities of the European Union (EU) regarding S&T has been assigned to the consecutive Framework Programmes (FP) and to the H2020, currently under implementation. Embedded themselves in even more comprehensive political flags, such as, for instance for the H2020 programme, the «Innovation Union» and «Europe 2020», they constitute the main structuring and funding mechanism for the implementation of the model of a «Europe of Innovation», seeking to support the scientific activity in all its stages (basic research, R&D technology, demonstration, prototyping, large-scale validation, piloting, market), through the assignment of funding platforms framed by the pillars «Societal Challenges», «Scientific Excellence» and «Industrial Leadership» (European Commission, 2014e).

Given that the ultimate objective of the FPs and of the H2020 is to set the research policies at the same level of the economic and social ambitions of EU, by consolidating the ERA, and by reacting to the industry requests, in terms of research and knowledge, and to the European policies, in general terms, the ERA operational scheme consists in a set of activities, programmes and policies

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challenges. The goal is to ensure that Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation.

to support research, development and innovation, on the condition that they involve a transnational perspective (Harper *et al*, 2008).

As previously referred, assuming that the fundamental idea is to create, at the research level, a common space similar to the European «single market», and considering the still relatively fragmented character of the European research activity, due to various national and institutional barriers, the ERA initiatives intend to promote the interaction and the interchange among scientists from the EU space and its areas of influence. Through them is provided financial and institutional support to the establishment of research funding consortia, to research careers, to mobility, to knowledge transfer actions, and to the multilateral cooperation schemes among research institutions of the member states of the EU and between public research and industry. And they aim to stimulate the circulation, the competition, and the cross-border co-operationalization of researchers, research institutions and technological companies, in order to exploit synergies and complementarities at a transnational level.

Since its inception by 2000, ERA has been focused on transnational cooperation in all research areas. Its purpose consists in the increment of the competitiveness of the European research institutions, stimulating their approach to each other and encouraging a more inclusive scheme of labor, analogous to the already existing among organizations in North America and Japan.

## **2.2. Historical background**

In strictly chronological terms, the notional conception of ERA was proposed by the EC in its communication *Towards a European Research Area* (2000) of January. The aim of the creation of ERA was subsequently endorsed by the EC at the «Lisbon European Council», in March 2000.

In 2002, the «Barcelona European Council» set a target for EU R&D investment intensity to approach 3% of the GDP. Consequently, the EC proposed a widespread action plan to increase and expand the R&D expenditure in Europe, and all Member States made efforts to harmonize their national R&D investment targets with the overall 3% objective. In the «Brussels European Council» of March 2003, the policy coordination in the ERA was addressed, through the so-called

«open method», with implications in the guidelines related to investment in research, as well as human resources and mobility of researchers (European Council, 2003).

In 2006, the EC embraced a broad-based innovation policy, targeting to increase the structural conditions for R&D. In this framework, for example, a restructured community agenda for public support for R&D was adopted in November 2006, and initiatives have been taken to assist on the advent of European «lead markets» in expectant technology-intensive sectors (European Commission, 2006). Several instruments were launched to support the coordination of research activities and programmes, and they include, for instance, the European Technology Platforms, through which industry and other stakeholders develop long-term visions and strategic research agendas in areas of business interest, and, more within the scope of our interest, the bottom-up ERA-NET scheme, to assist the coordination of national and regional programmes.

In 2007, the publication of a «Green Paper on ERA» (guaranteed by a wide public consultation that would confirm the main policy orientations), sharply appealing on the expiration of the fragmentation of the European research landscape, constituted a renewed impetus to the structuration of ERA (European Commission, 2007a); at this stage, and following the EC proposals, the Member States started to launch structured «partnership» initiatives to increase cooperation in five areas (careers, working conditions and mobility of researchers; the joint design and operation of research programmes; the creation of world-class European research infrastructures; the transfer of knowledge and cooperation between public research and industry and international cooperation in science and technology).

From the FP6, the EC Research Framework Programmes (FP) were unequivocally designed to support the accurate implementation of ERA (O'Donnel, 2015, 5-7). Following the EUREKA programme, from the 1980s, seven consecutive FPs, with a duration of five years each, would seek to increase the level of funding of the transnational research networks in universities, public laboratories and companies. The success of the venture, however, especially in the context of the first five programs, would be very limited (Banchoff, 2002: 3), despite a non-insignificant budget; until, at least, the FP6, does not seem controversial to argue that, mostly due to the fact that the

governmental funding was largely channeled for domestic research programs and national institutions, and a cross-border mobility of researchers remain restricted, an «integrated European space» for S&T subsisted a mirage (Banchoff, 2002: 4) .

However, since the FP6, and in an appreciation computing data until the end of the FP7 and the initial years of the Horizon 2020, the European research landscape began to express a steady integrative trend. From 2002 on, and until the end of FP7 (2013), through an investment of 483M euros in the European Research Area, 123 ERA initiatives have benefited from EC funds for coordination of national research programs, involving a total of 72 nations, from EU Member States, associated and third countries. Between 2004 and 2014, 359 transnational joint calls for research proposals were implemented, promoting the funding of over 3400 scientific innovative projects; until the end of 2017, 35 plus contests are already planned.

In terms of economic leverage<sup>7</sup>, the support from the ERA-NETs created a substantial execution in the coordination of research through a multiplier effect on the order of 6 (FP6) and 10 (FP7). The critical mass, the evaluation standards, the financial integration and the incremental participation of coordinated researchers are aspects also exponentially incremented (Niehoff, 2014: 5-25).

Together with certain parallel initiatives, such as the enactment of the European Research Council, the FP7 (2007-2013) had a significant impact on the European research landscape. EU cohesion policy and its pecuniary instruments – *e. g.* the Structural Funds – strongly focused the expansion of research and innovation capacities, mostly in less developed regions; in articulation with the priority given for the majority of the Member States in its internal policies, it consisted of a significant aid to Europe in joining in and in deriving full advantage from the ERA.

Stronger conclusions can only be obtained at the end of H2020, but building on preliminary indicators (number of joint calls (35) already programmed for the period 2015-2017, the volume of financing (600M euros) of transnational calls for the biennium 2015-2016, the growing involvement of funding agencies, countries, and of the scientific community) stimulating expectations could be predictable.

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<sup>7</sup> Financial technique applied to account for the exponentiation of the return on investments.

### **2.3. ERA initiatives**

For the achievement of the ERA objectives two initiatives to promote the cooperation among funding agencies, ministries and research institutes are of particular importance: the ERA-NETs and the Joint Programming Initiatives (JPI). Subsidiary, also the Coordination and Support Actions (CSAs) contribute, in their specific scale, for the same purpose, achieving significant importance in the context of the theme that we intend to develop.

The ERA-NET scheme was launched in 2002, in the FP6 (Niehoff, 2014: 5), aiming the conciliation and consolidation of the European scientific policies and strategies, as well as the facilitation and the strengthening of the transnational collaboration between researchers and institutions. On the assumption that the national funding agencies can associate themselves in consortia of geographical or thematic scope, in order to fund innovative transnational research proposals, the instrument, in its classic model, is organized in a design in which the European funding is exclusively channeled to the network coordination activities, and the funding of research projects is provided by each participating country. The ERA-NET objectives are achieved through the implementation of several tasks, as mapping, dissemination, evaluation and monitoring of the activities developed within the consortium, and the consequent implementation of transnational joint transnational calls. Within the FP7, the ERA-NET scheme was reinforced by an additional module, the ERA-NET Plus (Niehoff, 2014: 5), simultaneous of the traditional ERA-NETs, in which the total budget of the calls was increased in 30% by a 'topping-up' from the European Commission. Within the framework of the H2020, all ERA-NETs are integrated in the co-fund scheme, with a 'top-up' similar to the ERA-NET Plus, from which derives the designation ERA-NETs Cofund (subsequently, will be described, in detail, this ERA-NET Cofund scheme).

The concept of «Joint Programming» (JP) was introduced by the EC in July 2008, in order to establish another support mechanism to the ERA, together with the ERA-NETs. JP is a structured and strategic process that aims to enhance the efforts of the funding institutions, both at national and European level, through joint planning activities, implementation and evaluation of national research programmes, towards the enhancement of the use of the EU resources in R&D, and to

address the common European challenges in a more effective way (European Commission, 2008). In JP it is supposed that the Member-States agree on common views of implementation of the Strategic Research Agendas, to address the most pressing societal challenges. When considered that the next step should be the promotion of transnational calls, they resort to the ERA-NETs or to another instrument also in use, the Coordination and Support Actions (CSAs). Although JPIs can only be joined by Member States (which would seem to circumscribe its importance to the central theme of this thesis – the assumption of Program Manager functions by national institutions others than FCT), their importance in this context lies precisely in the fact that they rely to ERA-NETs and CSAs to the establishment of joint transnational calls, and these two instruments, in turn, can incorporate other organizations of the Scientific and Technological National Systems (STNS). CSAs, in turn, are actions that cover not the research itself, but the coordination and networking of projects, programmes and policies. This includes, for instance, coordination and networking activities, dissemination and use of knowledge, studies or expert groups assisting the implementation of the FP, support for transnational access to major research infrastructures, actions to stimulate the participation of SMEs, civil society and their networks, and support for cooperation with other European research schemes (e.g. "frontier research") (European Commission, 2007b: 20-21). Nevertheless, it is a common procedure that JPIs ask for EC authorization for the opening of a CSA with the explicit purpose of promoting and launching a Joint Transnational Call.

#### **2.4. Portugal's participation in the ERA initiatives**

Portugal's involvement in the funding initiatives of ERA is ensured by FCT. From 2002 to 2015, and in a progressive scale, FCT participated in 70 ERA-NETs, 4 JPIs and 8 CSAs, of which 54 are currently active (this data will be addressed in the following point). The majority of these networks has a thematic scope, and is distributed by the four main research domains: Exact Sciences and Engineering, Natural and Environmental Sciences, Social Sciences and Humanities, Life and Health Sciences. The ERA-NETs detached of any of these areas are featured by their geostrategic relevance, and engender cooperation between the EU Member States and associated countries with



a third country or target-region in the world. In these initiatives of international cooperation, the themes of the calls for financing the R&D projects, as well as the topics, are defined *a priori*, by the participating agencies, from the areas where the national scientific community is more competitive, or due to its strategic significance. The financial and the “in kind” commitment of the Portuguese participation, as demonstrated below, could be considered significant and, until the end of 2015, was increasing.

Some facts and figures related to the participation of Portugal in the ERA initiatives, from 2004 to 2015, can be schematically presented. Since 2004, the Department of International Relations (DRI) of FCT managed the Portuguese participation in 94 initiatives of the ERA, from which 70 are ERA-NETs, ERA-NET Plus or ERA-NET Cofund, 4 are JPIs and 8 are CSAs (Table I).

**Table I - FCT's participation in the European Research Area initiatives**

INITIATIVE	Art. 169 / 185	CSA	ERA-NET FP6	ERA-NET FP7	ERA-NET PLUS	ERA-NET Cofund	INCO-NET	JPI	JTI	EJP	Other Agreements	Total
FCT's PARTICIPATION	1	8	13	34	6	17	6	4	3	1	1	94
TOTAL INITIATIVES	8	no data available	69	83	23	27	17	10	10	no data available	no data available	247

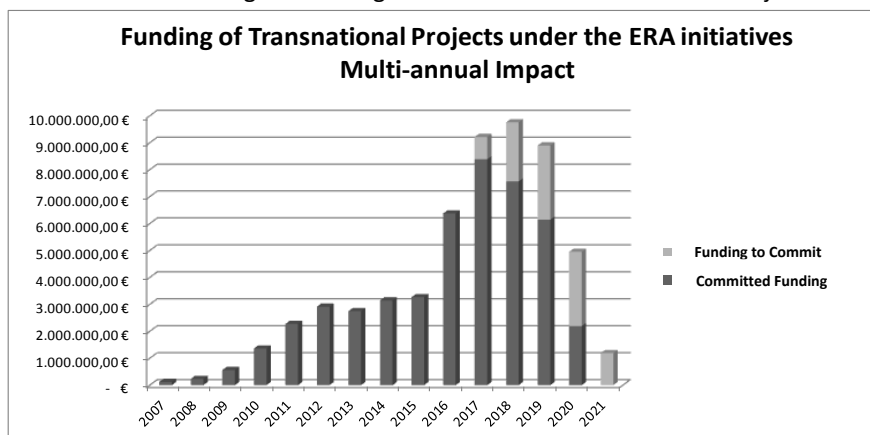
Source: DRI / FCT

For the implementation of the abovementioned 94 initiatives, FCT benefited from an EC funding of 4.1M euros, which was used to cover expenses with human resources, missions and indirect costs. Within the framework of the ERA initiatives, 109 Joint Transnational Calls (JTCs) were managed by FCT; in these 109 JTCs, 276 transnational innovative projects with national participation were funded, in a total amount of 37.1M euros (134.000 euros on average per project). These 276 funded projects benefited from a co-funding from the EC of 2.6M euros (1.7M euros resulting from projects funded in JTCs of ERA-NETs Plus and JTIs; 971.000 euros resulting from projects funded in JTCs of ERA-NETs Cofund). 54 of the 276 funded projects with national participation are coordinated by research teams based in Portugal.

Table II refers to the multi-annual financial impact of the projects already funded, to the commitment for the Joint Calls that still running, and to the commitment assumed for future Joint Calls. The increase in funding that is observed from 2016 onwards is due to the effect of the entry in the new framework programme (H2020) and the postponement to 2016, due to internal

management purposes, of several Joint Calls that should have started their funding processes in 2015, therefore impacting in the following four years.

**Table II – Portugal’s Funding Granted to Joint Transnational Projects**



Source: DRI / FCT

The countries of the European counterparts’ agencies with whom FCT has a higher level of collaboration in this period are also the countries with which the Portuguese researchers have established more connections within the joint transnational projects they coordinate or in which they are involved (Germany, France, Spain, Italy, Belgium, Netherlands, UK, Sweden, Austria, Norway). Annex I provides an overview regarding the interactions between FCT and its international counterparts, and the interactions between Portuguese researchers and their international counterparts.

Currently FCT manages 54 ERA initiatives, framed in several thematic areas of its four scientific domains (schematic information is provided on Annex II). Beyond a financial and an “in kind” commitment that, to our scale, could not be considered negligible and, until the end of 2015, was increasing, the participation of Portugal in the funding initiatives of ERA involved the structuration of a solid and fully operational institutional framework, led by DRI - FCT. This institutional framework become progressively recognized internationally, as evidenced by the consecutive and structured assumption of high level of responsibility and complexity functions assigned to FCT within several consortia in the ERA initiatives (leadership of Work Packages, secretariat of Joint Transnational Calls of ERA-NETs, JPIs and CSAs, coordination of ERA-NETs Cofund).

### **3. Problem statement and research questions: opportunities and challenges from the management of scientific research funding initiatives of ERA**

The problem statement, as previously indicated, is that, despite the positive results for the Portuguese scientific community that arise from the engagement of FCT in the ERA initiatives, FCT is the only national agency participating in the ERA scheme; besides that, FCT is reaching its limits in terms of human resources, circumstance that may constrain the participation in new initiatives. Thus, opportunities and challenges that may arise from an appropriation of some of FCT's functions (even if working on close cooperation) by other research funding institutions of the STNS should be signaled.

With regard to the research questions that will drive our investigation, they could be presented as follow, in two dimensions:

- which are the opportunities and challenges of the maintenance, or even increment, of the participation of Portugal, via FCT, in the ERA programmes and initiatives (opportunities and challenges for the Portuguese scientific community and for FCT)?
- which are the real possibilities, opportunities and challenges of the participation of other research funder institutions of the STNS in the ERA programmes and initiatives, namely by assuming Programme Manager functions?

#### **3.1. Opportunities and challenges of the maintenance / increment in the ERA programmes and initiatives (via FCT)**

An analytical exercise was conducted on this issue. Regarding the opportunities, for the scientific community, of the perseverance or increment of the participation in ERA, via FCT, the internationalization factor for the research units and SMEs guaranteed by the involvement of Portugal in these initiatives is one of the major aspects. In this regard it is fair to say that the partnerships with Portuguese ST&I institutions and SMEs are very attractive for international stakeholders, due to the recognized epistemic competence of the national teams in some specific areas, and the competitiveness, in financial terms, of the Portuguese human resources (the networking actions, the coordination efforts and the execution of the scientific tasks by national

teams are of low pecuniary volume, as can be seen by the average financial size of the national participation in the projects - 134.000 euros), and given the reliability of FCT as institutional partner and financial ST&I investor. But some other significant advantages arising from the participation and investment in transnational initiatives like the ERA-NETs, JPI's and CSA's can be listed, such as:

- the European Union, namely through the H2020 and the predecessor programmes, aims to actively support innovation, and this has given relevance to the instruments that provide funding and structural assistance to small and medium-sized enterprises (SMEs) and start-ups (European Commission, 2014e). Nevertheless, for Portuguese companies that have never participated in European projects, the bureaucracy and the strong competition inherent to these complex instruments may constitute dissuasive factors. In this context, companies, especially those that still not have R&I international partnerships, may envision in the Joint Transnational Calls of the ERA-NETs facilitating instruments of transnational cooperation, due to the fact that they are already familiar with the rules and regulations of the national funding programmes;
- the transnational joint procurement of ERA-NETs results from coordination efforts between countries and regions in Europe on topics of common interest, but those topics commonly constitute themselves as global challenges, often involving countries outside Europe. Thus, the national scientific community, including companies, may have access to scientific and gnoseological databases, specific networks of international partners and new European and non-European markets, which would not be provided in national funding programmes;
- the average funding of a national project stands approximately, on average, in amounts below 140.000 euros. By providing the same amount to a Portuguese institution participating (or coordinating) in a transnational project in the order of 0.5 to 1 million euros of requested funding (1 to 2 million if we ponder the total budget of the project, considering the *in kind* contribution of the companies), this Portuguese institution would benefit from access to R&I about 6 times more expensive. This is an advantage not only for the Portuguese institutions but also for FCT, given that it affords a more efficient use of the national funds;

- many of these Joint Transnational Calls of the ERA-NETs aim to support excellent research oriented to the needs of the industry and to promote the academia-industry partnerships (e.g. ERA-NETs SIINN, ERA-IB, MANUNET, M-ERA.NET, ENM), thus ensuring the transfer of knowledge and the financial exploitation of the R&I results, a fundamental aspect for the national economies.

It does not seem controversial to argue that pursuing in or increasing the level of engagement in the ERA initiatives by FCT should promote, respectively, the maintenance or intensification of each of the listed benefits.

Concerning the challenges for the scientific community, the most significant one is related to the urgency of a gradual, structured growth in competitiveness. We refer, in particular, to a capacitation in research competences, skills and expertise, wherein, for this purpose, it is essential the establishment of a more effective supportive effort by the research units to its teams, in structural terms and in terms of administrative and management sustenance. The path to this desideratum would consist in the creation of conditions for scientific researchers to exclusively focus the epistemic dimension of their work, as the goal of the Portuguese scientific community should be to abandon the subsidiary tasks in the international consortia, detaching themselves from what could be designated as a «parasitization» strategy towards some teams from the more competitive central European and Scandinavian countries, and to grow in effectiveness. If this step towards a higher level of competitiveness is accomplished, national investment could turn out to obtain even superior rates of return.

With respect to FCT, as well as for any other European funding organizations, it is quite obvious that competitive research in some specific fields cannot be exclusively funded by unilateral means, and therefore the coordinated programming of the national priorities for joint research is of common interest, being this harmonization of efforts particularly crucial when referring to very expensive research. Right from the start, therefore, can be argued that the participation of FCT in the ERA initiatives consists of a substantial opportunity in the context of its mission.

In strategic and organizational terms, as expressed in the end of the last chapter, the benefits of an active involvement of FCT in ERA, on behalf of Portugal, are also substantial. Reiterating the

allegation that DRI has been progressively contracting a higher role on the assumption of activities that require increasingly specific skills, as the participation in the definition of the strategic research agendas, coordination of ERA consortia, or the preparation, monitoring and secretariat of joint transnational calls, it may be sustainably argued that Portugal reached a transnational dimension, in institutional terms, never attained before, dimension that goes beyond the former representativity role in the EC R&I organizations. Through the previously indicated organization of a concrete and fully operational institutional framework, led by DRI, Portugal has managed to achieve the same level of the other European partners with respect to the obtaining of the EC financial and structural support for the establishment of networking activities in the framework of the ERA initiatives; obviously, the Portuguese scientific community is the ultimate beneficiary of all this effort.

Nevertheless, on the other hand, some challenges should be considered in this precise context. Bearing in mind that the financial commitments of FCT for the Calls of the initiatives in which it is involved are significantly lower than the monetary contributions of other European agencies, and given that they may also be considered limited when compared to the financial investments for the national programmes, a major internal challenge could also be envisaged, related to the strategical approach conducive to the increase of the return of the domestic investments.

According to literature already mentioned, the support from the EC to the ERA initiatives could generate a significant leverage effect (Niehoff, 2014: 5-25). Beyond the leveraging of aspects as the critical mass, the evaluation standards and the incremental participation of coordinated researchers, the substantial execution in the coordination of research could reach a multiplier effect, in financial terms, in the order of 6 to 10 (Niehoff, 2014: 5-25). For this reason, a potential increase of the financial investment and of the structural support to the Portugal's participation in the international cooperation via the instruments of ERA<sup>8</sup> should consist of a priority. The advantages of an increase in the financial investment, in addition to the obvious possibility of funding more projects with

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<sup>8</sup> Obviously, an increasing in the national investment would only make sense in areas in which our scientific community is already competitive; in other less competitive areas, the financial effort should continue to focus on national programmes, in order to boost competitiveness, and enhancing the consequent internationalization.

national participation, would refer to the fact that, in this supposed conjuncture, the EC «topping up» would be significantly enlarged<sup>9</sup>, as the countries of central and northern Europe, the great beneficiaries of this scheme, quite well realized. Even in a circumstantial situation of budgetary constraint, or either on a persistent state of reduced budget liquidity, as occurs to the southern European countries, this possibility should not be overlooked. In this regard, a concrete proposal with respect to the financial options for the implementation of the ST&I budgets could be provided: the slight displacement of a previously determined quota of the financial resources predicted to national funding schemes for the transnational cooperation of the ERA initiatives could enable that prestigious, competitive and reliable Calls, both from a financial and scientific perspective, would be launched with simple and low resources for its management. And this because, contrary to the national research funding programmes, significant secretariat costs would be obviated, such as those related to the submission process, to the international evaluation of the submitted proposals, and to the follow-up (scientific and financial periodic assessment) of the funded projects.

Notwithstanding, any opportunities and challenges that can be conjectured in this regard should take into account the referred turning point that FCT is going through, via the relatively recent inauguration process of the new Board of Directors, and the guidelines arising from the also newly inducted Ministry of Science, Technology and Higher Education (MCTES). However, ironically, this strategic change of priorities by the national organization responsible for the involvement of Portugal in ERA enhances the relevance of the central proposal of our thesis (the possibilities of the participation of other institutions of the STNS in the ERA and initiatives), even by the fact that this tactical turn has not been motivated by conclusions dissimilar than those set out in the former sections, but rather for governmental reasons, directly arising from the MCTES.

### **3.2. Possibilities, opportunities and challenges of the participation by other research funding institutions of the STNS in the ERA programmes and initiatives**

With respect to the possibilities, opportunities and challenges for Portuguese research funding organizations of the STNS, other than FCT, that may arise from the assumption of active functions

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<sup>9</sup> Unfortunately, the strategic decision of FCT for the next years in this regard, by Ministerial imposition, will consist of a disinvestment in the transnational cooperation.

in the ERA programmes and initiatives, we believe that they are real, significant and of high auspiciousness.

For the moment, at national level only FCT participates in the ERA initiatives, assuming the simultaneous purposes of Programme Owner and Programme Manager (*cf.* notes 3 and 4). The coordination and operational responsibilities in this area are centralized in DRI. However, in legal terms, and similarly to what happens in many other European countries, in which the scheme of an official assignment of «Programme Management» functions to governmental or non-governmental institutions is broadly disseminated, there is nothing to prevent that some other institutions of the national system of research and innovation can assume analogous functions of funding («Programme Owner») or management («Programme Manager») in ERA-NETs or CSAs, even in those established in the framework of JPIs<sup>10</sup>. The legal requirements from EC are very clear, only stipulating that the participants in ERA-NET Cofund and CSA actions must be «research funders, i.e., legal entities owning or managing public research and innovation programmes<sup>11</sup>» (*Cf.* «C. Standard Eligibility Conditions», HORIZON2020 – *Work Programme 2016-2017*).

Incidentally, this is a fairly widespread practice throughout the ERA. The German example is one of the most emblematic: BMBF (Bundesministerium für Bildung und Forschung), the Federal Ministry of Education and Research, not neglecting the duties of Programme Owner (particularly with regard to the financial commitment to the JTCs), very often assigns the responsibilities of Programme Management to some other institutions of their STNS, as the DLR Projektträger (DLR Project Management Agency - <http://www.dlr.de/>), the Projektträger Jülich (Project Management Jülich - <https://www.ptj.de/>), the Deutsche Forschungsgemeinschaft (German Research Foundation - <http://www.dfg.de/>), the Projektträger DESY (PT – DESY - <https://pt.desy.de/all>), or the Verein

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<sup>10</sup> Although the national representation in JPIs has to be assumed by Member States, the management of scientific research funding instruments can be allocated to third parties, duly mandated.

<sup>11</sup> If the Programme Owners must be «national/regional ministries/authorities responsible for defining, financing or managing research programmes carried out at national or regional level», thus possessing a governmental component, Programme Managers should be «research councils or funding agencies or other national or regional organizations that implement research programmes under the supervision of the programme owners». The only condition imposed is that «their participation has to be mandated by the national/regional authorities in charge» (*Cf.* European Commission (2016d). «C. Standard Eligibility Conditions», HORIZON 2020 – *Work Programme 2016-2017*, pp. 7-9).



Deutscher Ingenieure (VDI Association of German Engineers - <http://www.vdi.eu/>), all of them implementing research and innovation funding programmes on behalf of the federal authorities.

In Austria, in turn, project management competencies in some ERA-NETs and CSAs are delegated by the Federal Ministry for Transport, Innovation and Technology (BMVIT) to AIT (Austrian Institute of Technology - <http://www.ait.ac.at/>), to FFG (Austrian Research Promotion Agency - <https://www.ffg.at>), or to FWF (Austrian Science Fund - <https://www.fwf.ac.at/>).

The budgets for the research projects, namely for the JTCs of the ERA-NETs and CSAs, are supported by BMBF, in the German case, and BMVIT, for Austria, but the involvement in the actions and the development of the activities within the consortia are ensured by these institutions, in the context of the project management functions for which they were mandated.

As should be take into account the federal character that both abovementioned countries incorporate (Germany is a federal parliamentary republic; Austria is a parliamentary representative democracy of federal states), as well as their financial standards, or even their proximity to EC decision-makers, other examples, closer to our national reality, may be provided.

In Romania, UEFISCDI (Executive Agency for Higher Education, Research, Development and Innovation Funding - <http://uefiscdi.gov.ro/>), a public institution subordinated to the Ministry of National Education, acts, in the ERA context, as Programme Manager for ANCSI (National Authority for Scientific Research and Innovation), the Programme Owner. In Ireland, GSI (Geological Survey of Ireland - <https://www.gsi.ie/>), and EPA (Environmental Protection Agency - <http://www.epa.ie/>), also have been assuming responsibilities on the management of programmes related to the ERA instruments, on behalf of the Irish Minister for Education and Skills. In Italy, Veneto Nanotech, SCpA (<http://www.venetonanotech.it/>), a company established in 2003 by the Universities of Padua, Venice and Verona, as well as by the Veneto Region in cooperation with the Italian Ministry of University and Research, operated for many years as Programme Manager for the Italian Direzione Generale della Ricerca e dell'Innovazione in Sanità (Ministero della Salute). In Finland, STUK (Radiation and Nuclear Safety Authority - <http://www.stuk.fi/web/en>), took in

charge, over the last year, programme manager functions in the European Joint Programme (EJP) action «Concert», on behalf of the Finnish Ministry for Education and Skills<sup>12</sup>.

Obviously, to position themselves as consistent Programme Manager candidates (as the aforementioned international institutions), the national organizations that may be interested must demonstrate to the Programme Owner the possession of institutional and structural conditions, namely a solid and operational structure for the international relations, endowed with high standard organizational procedures and advanced training human resources, in order to ensure that the opportunities and challenges for the Portuguese scientific community, as described in 3.1., are still as guaranteed as if FCT remains in the program management functions. Ultimately, this is the great challenge to the research funding institutions of the STNS that may want to participate as Programme Managers in the ERA initiatives.

### **3.3. Conclusion**

Taking all of this considerations into account, and also bearing in mind that FCT is reaching a level of saturation in terms of human resources (consequently unable to integrate new transnational funding consortia at an increasing rate, as in previous years), we assume that some national institutions may initiate efforts to position themselves as potential Programme Managers for some of the ERA initiatives, obtaining financial profits and significant non-material returns, in terms of institutional prestige, and in terms of capability to make lobby for its strategic priorities. For some Portuguese organizations, such as Fundação Calouste Gulbenkian or Fundação Champalimaud, which are already private funders of the scientific research, in some specific areas and for specific programmes at national level, taking on the responsibilities of Programme Manager would not consist of an intricate process, and this step would ensure the international dimension of its core strategic guidelines. But also to a whole range of other Portuguese organizations, from different scientific areas, this scenario may be realistically considered, without excessive complexity.

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<sup>12</sup> Annex III refers to the initiatives in which each of this Programme Manager agencies participate.

#### **4. Methodological Approach and Empirical Application**

Based on our personal experience in the management of initiatives and instruments of ERA<sup>13</sup> a simulation of a case of participation in an alleged ERA-NET Cofund, as Programme Manager, will be conducted. While method to adopt as empirical application, this theoretical exercise will certainly enable useful inferences to the issues under discussion, particularly with respect to the financial sustainability of the conjecture.

Cognizant of the EC's financial incentive systems to the networking activities of public-public partnerships (P2P), in particular of the differences introduced by the H2020 programme regarding FP7, and possessors of systematized data on the participation of the national scientific community in all of the initiatives streamlined by FCT (aspects that may allow a direct translation to other institutions of the national scientific and innovation system), we will following present the ERA-NET Cofund scheme. Our aim will be to describe the organizational and structural process of an ERA-NET Cofund in all its dimensions, and simulate the financial, strategic, organizational and internationalization-related advantages that may result to an organization, mandated by a Programme Owner organization, on assuming Program Manager functions, particularly those related to the project management of an ERA-NET Cofund.

##### **4.1. Establishment of an ERA-NET Cofund: underlying rationales, and factors that lead different countries / agencies to integrate the consortia**

The ERA-NET Cofund scheme under H2020 is designed to support P2P partnerships, including JPIs, between Member States, in their preparation, establishment of networking structures, design, implementation and coordination of joint activities. With regard to the architecture of the previous FP6 and FP7, the differential character of the ERA-NET Cofund lies in the assignment of EC topping-up to the participating agencies, via the Coordination of the consortium, for one transnational call for proposals, from a scheme based on the merger of the former ERA-NET and

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<sup>13</sup> For about four years we have been actively monitoring the efforts, on several initiatives, leading to the launch of joint transnational calls, and actively participating in all activities of the networks, from the selection of the topics to the national call coordination, and from the formal support to the Portuguese scientific community (at the level of the national regulation and of the structuration of the budgets) to the final budgetary decision on the projects to be fund.

ERA-NET Plus actions and executed via «programme co-fund actions», allowing for programme collaboration in any part of the research-innovation cycle.

The typical management framework of an ERA-NET Cofund is the following: a Coordination Unit, composed of a coordinator, a project manager and a financial and administrative officer, under the aegis of the Network Steering Committee (the highest liable body of the consortium, composed of one representative from each partner organization), is the ultimate responsible of the network with the EC. In scientific terms, the Coordination Unit is supported by an External Advisory Board, composed of experts from academic research, clinic, SME and large industry, covering the epistemic main fields. In strictly operational terms, is backed by the Operative Group, composed of some of the members of the NSC – the coordinator, the WP leaders and the NSC Chairman; and, for the specific purpose of the JTCs, is assisted by the Call Steering Committee, formed for each joint call and composed of those NSC members taking part in the joint call, and additional partners outside the consortium which may join the calls.

The central and mandatory activity of the ERA-NETs Cofund under H2020 is the implementation of one co-funded joint call for innovative proposals that promotes the funding of transnational research and/or innovation projects. The reimbursement rate applied to the ERA-NETs Cofund is 33%, similarly to the ERA-NET Plus actions under FP7. Beyond the co-funded call, the consortia are allowed (and stimulated) to implement additional joint activities, namely supplementary joint calls without EC topping-up.

The extent of the ERA-NET Cofund actions is established to 5 years. In this period the consortium has to organize and implement the (co-funded) call, make the final evaluation decisions and negotiate the proposals, and finalize the projects (including the final payments to their beneficiaries) (European Commission, 2016c).

Several actions, as follows, are performed from the inclusion of a topic for the financing of an ERA-NET Cofund in the European Commission's work program until the completion of the Joint Transnational Calls launched in the framework of the initiative.

The topic for an ERA-NET Cofund may arise from the own interest of the EC, that introduces a theme for an ERA-NET Cofund in the work program; from the contributions of the High-Level Groups (Strategic Energy Technology Plan, Strategic Forum for International Science and Technology Cooperation, European Technological Platforms) to the committees of the Societal Challenges Programs of the H2020; from the demonstration of interest of the scientific community, the funding agencies, and the existing ERA-NET consortia in the inclusion of a specific subject in the work programme; from the demonstration of interest of the JPIs in the context of the implementation of its Strategic Agendas for Research and Innovation.

The accession process of a funding agency to a new initiative stems in a procedure of recognition of the potential interest, based in the consideration of several criteria, such as the alignment with the priorities of the national ST&I strategy; the existence of scientific expertise and critical mass in the specific thematic area; the geostrategic significance; and the political significance assigned to the transnational cooperation.

After the ratification, by the national executive structures, of the decisions regarding the involvement, the consortium, under the aegis of a pre-established Coordination, engages the process of submission of an application to the EC. The application must include the description of the main features related to the internal operationalization of the future ERA-NET, particularly with regard to the general rules for the use of the EC financial contribution, the timeline of the Cofund Call and of the other possible non-co-funded Calls (included in the «additional activities»), the determination of the eligibility criteria and of the general regulations of the Call(s), and the guidelines for the evaluation process. In case of a positive decision, the consortium is invited to sign the Grant Agreement, and the ERA-NET project is integrated in the «Participant Portal», the online platform of the EC.

Although would be impossible to consider as negligible a whole set of activities of direct support of the operationalization of the ERA-NET (such as the consortium coordination, management and strategy, the monitoring and assessment of the projects funded through co-funded call, the communication and dissemination actions, the monitoring and evaluation of the activities funded,

the training of funded researchers, among others), the Transnational Joint Calls constitutes the acme of all this effort. The preparation of the Call, namely the co-funded Call (which, in the H2020 scheme, necessarily has to be performed in a two-step procedure), requires the implementation of several sequential procedures, including: the decision on the application of the evaluation criteria determined by EC (Excellence, Impact and quality and efficiency of the Implementation); the preparation of the application forms; and the preparation of the national regulatory annexes.

After all this procedures, and considering that the application forms and the national annexes are finalized, and the evaluation criteria are decided, the Joint Transnational Call is prepared to be launched (European Commission, 2016c)<sup>14</sup>.

#### **4.1.1. Organization of Activities**

For the effective development of actions in the context of an ERA-NET Cofund, the achievement of several activities, involving all Parties, is considered crucial. The nature of the tasks to be performed, the breakdown of responsibilities between the Parties and the estimated budget are defined in advance in a structural document, entitled «Description of Action». «The Description of Action», integral element of a broader binding document, the *Grant Agreement*<sup>15</sup>, is composed of a Work Plan, organized in different work packages (WP) led by a Work Package leader (WPL). Each WP is divided in different tasks led by a Task leader (TL). The list of the WP, tasks and respective WPLs and TLs are part of the supporting documents of the ERA-NET Cofund.

All Parties are liable for providing feedback to the *Grant Agreement*. Those who decide to participate in the implementation of tasks from the proposed work plan – directly, or by mandating

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<sup>14</sup> For a comprehensive overview on all the conditions to conform a proposal to the submission process of a call from the Commission, could be consulted the EC guide *H2020 Programme. Multi-Beneficiary Model Grant Agreement (ERA-NET Cofund)* (2016).

<sup>15</sup> The *Grant Agreement* is an EC standard contract defining the basic conditions for the project financing. Apart from these conditions, which are stipulated in the main body of the contract, the *Grant Agreement* consists of a set of Annexes, namely: the «Description of the Action» (composed of the originally submitted Proposal, including the individual Work Packages and Deliverables and the Milestones of the individual Project); the «Estimated Budget for the action»; the «Accession Forms» (primarily a form to be signed by those Project Participants acceding to the *Grant Agreement*); the «Model for the financial statements»; the «Model for the certificate of the financial statement»; the «Model for the certificate on the methodology»; the «Model for the commitment on availability of funds»; the «model for the statement on the use of the previous pre-financing instalment». The EC, the EU's representative, the Coordinator, and the representatives of the participating organizations are mandatory signatories of the *Grant Agreement*.

third parties on their behalf – are responsible, among other things, for executing all the work necessary to achieve the objectives of the different tasks of the TLs/WPLs under their management; providing the TLs/WPLs with regular activity reports, meeting the deadlines established by the TL/WPLs or indicated in the work plan; and providing, upon request, financial data to the Coordinator and/or the WPL/TL involved.

Despite some incidental discrepancies, the implementation plan of an ERA-NET Cofund is structured within the framework of a set of activities, sectioned by Work Packages (WPs), similar to the one schematically described in Annex IV.

#### **4.1.2. Mandatory conditions for the implementation of the co-funded call**

In order to be eligible to benefit from the EC's «topping up» for the implementation of the co-funded call under the H2020 ERA-NET scheme the consortium must ensure the application of a strict regulation in accordance to very specific conditions. The proposals to be submitted to the joint call must be transnational, involving at least two independent entities from two different EU Member States or Associated Countries. The consortium must promote the joint call at national/regional level via their usual channels. The joint call shall remain open for the submission of proposals for at least 60 days, and the consortium must officially notify the EC of the call and its content at least 30 days before the expected date of publication. The consortium must execute the joint call through a two-step procedure, with a first stage for the review process at national or transnational level, and a second stage for the international peer review procedures. The assessment of the applications (with the involvement of at least three independent experts) must be based on the criteria of excellence, impact, and quality and efficiency of the implementation. Proposals must then be ranked according to the evaluation results, and the selection for funding must be made on the basis of this ranking. An independent observer, with expertise in the topics of the call, and appointed by the consortium, shall assess the conformity of the implementation of the joint call and, in particular, review the proper execution of the independent international peer review and the establishment of the ranking list of the transnational proposals. The consortium must submit to EC,

after the end of the evaluation process, information on each of the proposals selected for funding, including data regarding the teams and abstracts of the scientific work plan, for publication and evaluation purposes<sup>16</sup>.

#### **4.1.3. Financial Provisions: the use of the EC contribution for management activities and for the financial support to the transnational projects**

Although no costs for activities related to the preparation, implementation and follow-up of the co-funded call are directly eligible for the claim for topping-up, the consortium has the possibility to use part of the EC contribution to support their activities as long as the corresponding expenses are not declared and the EC contribution does not exceed 33% of partners' funding of transnational proposals and unit costs for additional activities. This means, in practical terms, that the consortium members have to replace any EC financial provision that may be used to support their activities with additional national contributions to the funding of transnational projects. This strategy had been applied by the ERA-NET Plus actions under FP7. These financial requirements should be formally registered in the Consortium Agreement.

Regarding the coordination costs, the principle of H2020 to apply a single reimbursement rate per action does not allow any longer refunding fully the coordination costs for ERA-NET actions, contrary to FP6 and FP7. A 33% reimbursement rate of actual coordination was considered not feasible. The financial arrangement that was decided for the ERA-NETs Cofund was the modality of Unit Costs for coordination expenses of additional activities (other than the co-funded call). The Unit Costs for ERA-NETs Cofund has been determined on the basis of historical data of a representative sample (around 30%) of the 71 ERA-NET projects under FP6 (namely the coordination costs declared and approved for the final payment).

On that basis, the Unit Costs for eligible direct coordination costs of additional activities, per beneficiary, per year, was fixed at 29.000 euros, to which the flat rate of 25% for indirect costs under H2020 is to be applied, as well as the reimbursement rate applicable to ERA-NET actions.

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<sup>16</sup> For additional information regarding points 4.1.1. and 4.1.2., cf. European Commission (2014f). «Types of action: specific provisions and funding rates» (Extract from Part 19 - Commission Decision C (2014)4995).



As a consequence, the maximum reimbursement of direct and indirect costs of coordination of additional activities, per beneficiary, per year, is 11.962,50 euros.

Although these amounts may seem humble, the majority of the associated agencies would be able to participate on the basis of the Unit Costs, whose value seems sufficient to cover the costs of the participation of the allocated human resources in the international meetings and the costs of the national coordination of the JTCs.

Core participants (coordinator, secretariat and WP and Task leaders) have the possibility to be financed by using part of the EC contribution for the co-funding of the call to pay for central costs, in the basis of the attribution of PMs<sup>17</sup> for the execution of activities, although in the condition that the consortium must replace the amounts jointly with additional national funding.

If the Unit Costs are paid on the basis of the number of years in which a partner took part in the activities (no financial reporting is necessary), with flexibility for the consortia to decide which partners use the coordination costs in which years, in this PMs approach partners have to plan and report the number of years in which they take part in additional activities. The total amount that can be allocated to coordination costs is limited: the contribution to the coordination costs should not exceed 20% of the total EC's contribution to the action.

#### **4.2. The access to the EC funding: descriptive model of the process**

A simulation, based on financial plans developed by the leading institutions for their participation in the ERA-NETs Cofund scheme, may be conducted, on the economic impact of the assumption of Programme Management functions by any (alleged) eligible Portuguese institution of the STNS. Further dimensions of substantial magnitude, as the institutional prestige, the organizational strategy, or the internationalization factor, although not directly computed in this quantitative assessment, will not be neglected, due to its superlative importance.

But the starting point will be the figures of the Joint Transnational (co-funded) Calls launched under the ERA-NET Cofund scheme, finalized at the time, and in which FCT is involved:

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<sup>17</sup> For the PMs, the unit is the hours worked in the action. The costs per unit (hourly rate) are calculated according to beneficiary's usual accounting practice. The indicative value *per* PM for FCT is 3.776,36€.

**Table III – ERA-NETs Cofund: funding for projects and EC co-funding allocated to FCT**

Initiatives	FCT funding to projects	EC's management budget allocated to FCT	EC's budget allocated to FCT for the funded projects
Smart Cities and Communities	680.000 €	59.812 €	120.000 €
TRANSCAN-2	325.000 €	73.533 €	- €
DemoWind	- €	20.000 €	- €
JPco-fuND	900.000 €	59.812 €	92.500 €
Smart Grids	500.000 €	59.812 €	502.851 €
E-Rare	325.000 €	60.000 €	49.712 €
Waterworks 2014	706.000 €	120.000 €	283.000 €
<b>Total</b>	<b>3.436.000 €</b>	<b>452.969 €</b>	<b>1.048.063 €</b>

Source: DRI / FCT

As Table III indicates, for seven of the ERA-NETs Cofund in which FCT is currently participating, 3.4M euros were committed (co-funded calls of the initiatives Smart Cities and Communities, TRANSCAN-2, JPco-fuND, Smart Grids, E-Rare and Waterworks 2014). Although this is not the specific purpose of FCT, nor incorporated in its specific mission, besides a topping-up allocated through the EC's budget to FCT for the funded projects with national participation, in a total amount of more than 1M euros (circa 30% of the national investment), 452.000 euros were assigned to FCT exclusively for management costs. This amount, far from negligible, is related to contributions through the assumption of additional activities (therefore, simultaneously reimbursed on the basis of Persons/Month and Unit Costs). Is noteworthy that, although no financial commitment was assumed to the co-funded call of the ERA-NET Cofund DemoWind, 20.000 euros of EC's management budget were allocated to FCT (to networking activities, as the participation in meetings).

Obviously, any envisaged scenario in this regard is reliant on an arrangement among partners, to be stipulated in the Grant Agreement, and on the superiorly acceptance by EC. But very realistic estimations are possible to perform.

Though there may be exceptional cases of initiatives in which it is agreed among Parties that any EC's contribution should be almost exclusively channeled for the research projects, as a «topping-up» modality against partners' contribution (in this case, any Programme Manager organizations

could be financially supported by the mandating Programme Owner organizations)<sup>18</sup>, the typical procedure is the following: after agreeing in advance to make all reasonable efforts to match national funding to the requested budget, and assenting on the use of the maximum EC's contribution for the modality of «gap filling» to finance the highest possible number of projects under the co-funded Call, the consortium could decide to settle the distribution of the Unit Costs and of a predetermined number of PMs amongst partners, in order to guarantee the implementation of the additional activities by the beneficiaries.

#### **4.3. Theoretical simulation**

On proceeding to the theoretical simulation, the following conjecture (as close as possible to the factual archetypes) should be considered:

- an ERA-NET Cofund, of any scientific domain, already approved, with a consortium constituted by 25 partners;
- with a total committed budget for the co-funded call of *circa* 12.5M euros;
- with (eligible) direct coordination costs of additional activities of *circa* 2.5M euros;
- with (estimated) eligible costs of *circa* 15M euros for the action (sum of the previous two installments);
- with a commitment from the Portuguese institution of *circa* 250.000 euros;

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<sup>18</sup> This situation occurred for the specific case of the ERA-NET NORFACE. NORFACE is a collaborative partnership of national research funding agencies from 18 European countries in the area of social and behavioral sciences. Launched in January 2004, the NORFACE network is the result of a successful bid for funding to the EC FP6 under the ERA-NET scheme. Evolving under FP7 to an ERA-NET Plus, this network was organized in a structure exclusively funded by the constituent partners.

For the Cofund Call «DIAL – Dynamics of Inequalities Across the Life-course», currently underway, the contributions to support the jointly selected transnational projects consist of the national/regional contributions, as defined in advance by the consortium, and EU funding (top-up). Parties shall use the majority of the financial contribution of EC to fund the transnational projects selected through the Joint Call. A budget of a maximum of 880.000 euros from the financial contribution of EC, in the modality of Unit Costs, has been set aside to cover the implementation costs of the Cofund Action. The secretariat organization, which concentrates the responsibility of implementing all the networking tasks, shall be the sole beneficiary.

- strictly considering the whole set of conditions imposed by the EC for obtaining the top-up (namely with respect to the total amount that can be allocated to coordination costs, that should not exceed 20% of the total EC's contribution to the action).

The maximum grant amount that this consortium would be eligible for obtaining from EC is of *circa* 5M euros. The majority of this amount should be used, as usually agreed, for the modality of «gap filling», to fund the maximum number of projects under the co-funded Call. Nevertheless, each of the partners participating in the action is eligible to receive Unit Costs for direct personnel expenses for the implementation of the trans-national projects (on the basis of an amount per unit calculated by the beneficiary in accordance with its usual rate accounting practices), according to the rational presented in the table below:

**Table IV – Estimated budget for the action<sup>19</sup>**

	Estimated eligible costs (per budget category)						EU contribution	
	A. Costs related to trans-national projects		B. Direct coordination cost of additional activities		C. Indirect costs	Total costs	Reimbursement %	Maximum EU contribution
	A1. Direct costs of providing financial support to third parties	A.2 Direct costs for the implementation of transnational projects by the beneficiaries						
Form of costs	Actual	Total	Units		Flat-rate			
			29000 EUR/year		25%			
	(a)		No units	Total	Total	Total	Total	Total
Partner X (PORTUGAL)	250.000EUR	0	4	116.000	29.000	145.000	33	47.850

Source: *H2020 Model Grant Agreement for ERA-NET Cofund*

As reflected in Table IV, and referring to the explanation in 4.1.3., 29.000 euros per year of direct coordination costs of additional activities are eligible to the EC, for 4 years (116.000 euros). EC is also available to support plus 25% (29.000 euros) of expenses with indirect costs, giving a total of 145.000 euros (116.000 euros + 29.000 euros). Assuming that the reimbursement rate is of 33%, after all the legally required deductions partners are able to apply for a total amount of 47.850 euros of Unit Costs, for the total duration of the action (5 years). The major source of funding, although, can be obtained in the previously mentioned assumption of activities in the consortium, on the basis of direct coordination costs for additional activities.

<sup>19</sup> Based on the model for the estimated budget for the action, provided in the *H2020 Model Grant Agreement for ERA-NET Cofund*, p. 105 (European Commission (2016b)).

To the formerly indicated conjecture, should be also supposed a work plan, establishing the detailed implementation of the consortium activities, generically structured in a set of articulated work packages (WP), led by some of the involved institutions. It may be supposed, as a mere academic hypothesis, the assumption of WP leadership responsibilities by an alleged Portuguese institution of the STNS. Table V refers to a conventional list of WPs, and to virtual WP leaders:

**Table V – List of work packages and work package leaders**

<b>WP number</b>	<b>WP title</b>	<b>Lead beneficiary</b>
WP1	Consortium Coordination and Management	Partner 1 (ES)
WP2	Preparation, implementation of the co-funded call, and evaluation of proposals	Partner 4 (FR)
WP3	Follow-up and monitoring of projects resulting from the co-funded Call	Partner 16 (PT)
WP4	Communication, exploitation and dissemination of the results	Partner 8 (IL)
WP5	Additional Joint Transnational Calls (JTC 2018, JTC 2019 and JTC 2020)	Partner 1 (ES)
WP6	Monitoring and Evaluation of activities funded in the consortium and training of funded researchers	Partner 14 (NO)
WP7	Communication and dissemination of results from ENM non-co-funded projects and consortium activities	Partner 8 (IL)
WP8	Strategy	Partner 4 (FR)

Source: «Financial Plan» (Annex V)

To the work load, as well as to the complexity associated to each of the WPs, a specific number of PMs, considered appropriate to their feasibility, should be assigned.

A Financial Plan was designed for this virtual ERA-NET Cofund, respecting all the conditions that have been enunciated, and also the PMs assigned to each of the partners for their leadership/participation in a specific WP, the PMs assigned for basic participation (expenses of partners with the national coordination of the Calls - support the scientific community, national dissemination, formal eligibility checks, national follow-up of the projects), the participants' PMs rates, and a budget reinforcement for travel (only if necessary). A complete overview is provided in an Excel document attached (Annex V). A fractional perspective of the result, focusing the specific case of the WPs leaders (in which is included the alleged Portuguese institution, highlighted in grey), is provided in Annex VI.

As can be inferred from the data presented, in addition to the total amount of 47.850 euros of Unit Costs that partners are eligible to apply for the 5 years of the action, supplementary incomes can be obtained via the direct coordination costs for additional activities, in the modality of PMs. For the

specific case of the Portuguese institution, which figures in the simulation as the leader of WP3 «Follow-up and monitoring of projects resulting from the co-funded Call» (to which 15 PMs have been allocated), also with a minor contribution in WP6 « Monitoring and Evaluation of activities funded in the consortium and training of funded researchers» (0.5 PMs), and, finally, beneficiary of 2 extra PMs for participation, 66.080 euros may be withdrawn from the EC's contribution (plus the extra amount of 15.000 euros that may be available to travel).

Under these conditions, we would have a situation in which the Portuguese institution could apply for a total amount of 113.930 euros ( $47.850 + 66.080$ ) for its active participation in the 5 years duration of the consortium. But even a non-active participation could be, in financial terms, very profitable, given that at least 2 PMs (7.552 euros) would be assigned for the basic participation, and a total amount of 55.402 euros ( $47.850 + 7.552$ ) could be achieved, values that, considering the national parameters, could ensure the sustainability of the participation in the initiative.

Once guaranteed the pecuniary sustainability, that for all intents and purposes is not a negligible matter, we can focus the non-financial dimensions, as the institutional prestige, the internationalization factor, or the organizational strategy.

With regard to the institutional prestige, it seems quite clear that the integration, as a full member, of an initiative of the European Research Area, directly supported and monitored by the EC, but also supervised by the national superior authorities, would represent a factor of the utmost importance in the establishment of a recognized reputation in the ST&I scenario, even more when assuming the national representativity.

On the other hand, the active involvement in the ERA initiatives, given their transnational dimension that widely exceeds the European and third countries dimension, by extending to global latitudes, ensures the internationalization factor, crucial aspect in current times.

Finally, for the organizational strategy, the integration of the governing boards of the ERA initiative constitutes a decisive factor. Directly or indirectly, this is one of the most feasible ways to influence a work programme in a specific area to better match the institutional future research and

funding objectives, by the close involvement with other stakeholders, researchers, and Member States and EC representatives.

## **5. Discussion**

The rationale advocated, the data presented, the simulation undertaken, although always open to the possibility of further assessments, seem to consistently support the notion that auspicious opportunities – whilst not exempt from circumspect challenges – may result from an active engagement in the transnational cooperation in European Research Area. The financial sustainability, the institutional prestige and the internationalization factor, inherent to the programmes and initiatives of ERA, appear to compete for this conviction. But if, at this point, the advantages in terms of organizational strategy and financial exploitation of the participation in ERA emerge with substantial soundness, other collateral issues may be convened for discussion.

Upstream, and given the highly auspicious scenario presented (financially, organizationally and strategically), the reasons for an apparent lethargy by the national organizations towards the possibility of becoming Programme Managers may be questioned. Some assumptions, at this respect, that could potentially justify the situation, may be drawn:

- organizations are not aware of this possibility;
- organizations are aware of the possibility, but not of the advantages;
- organizations are aware of the possibility and of the advantages, but consider they have no skills;
- given the relative newness of the procedure, and in view of the uncertainties inherent to the early stages of all venture processes, organizations chose to leave the risks to the public national funding agency (FCT).

In the same scenario, and considering that the support from the ERA-NETs and other initiatives may create a substantial execution in the coordination of research through a multiplier effect on the order of 6 to 10, may also be questioned which were the reasons for FCT not to have substantially increased its investments in more recent Joint Transnational Calls, in order to obtain higher rates of return. In this case, a justification can also be provided: the previous Board of Directors was

considering that possibility when was replaced by the current Board, in February 2016, circumstance that led to a shift in the strategic guidelines.

The last issue that we bring to discussion also substantiates a shift in the strategic guidelines. After several years of an increasing sustained investment, FCT is actually preparing a gradual reduction strategy of the participation in the ERA initiatives. Although the previous membership and financial commitments of Portugal are secured, the entry in new initiatives, even if considered strategic in terms of the scientific topic for the national research community, will be determined by stricter criteria, which will give priority to the channeling of the financial efforts and «in kind» contributions to national programmes, or to programmes with partners from different geographical areas (as USA or Canada), via the consideration that the internationalization factor should be achieved through means other than (or exclusively) ERA.

This conjecture would suggest a contradiction with the data and the claims that here have been explained. Nevertheless, such contradiction does not exist, due to the fact that the new strategic guidelines result from political determinations, and not from the refusal of any of the arguments here advocated. Moreover, we can even argue that, to the light of FCT's disinvestment, the opportunities for other organizations may be increased.

## **6. Conclusions and Future Work**

The data presented above provides support to the conclusion that the Portuguese participation in the ERA initiatives has been producing positive results. National scientific community has been had the opportunity to significantly benefit from the promotion of the internationalization factor, either by the funding of joint transnational projects, or by the integration of scientific panels, in the several networks, as advisers and as project evaluation experts. The portfolio of contacts that they are building is not insignificant, and the established networks are relevant.

FCT, as the national funding agency, has also been expanding its internationalization activities, marking an increasingly significant position among the other European funding agencies.



A substantial increase in the financial commitment and in the "in kind" contribution by FCT can lead to significant benefits for the national scientific community and for FCT internal organization.

Due to the fact that FCT is nearly exhausted in terms of human resources to allocate to functions related to ERA initiatives, some other Portuguese organizations from the STNS may assume management responsibilities, gathering the benefits from their proactivity.

Organizations that already have scientific research funding programmes, even if only at national level, would not be impaired on assuming also Programme Owner responsibilities, channeling the financial commitments of the national programmes for the transnational Calls: as the financial model commonly adopted in the ERA-NETs and CSAs is, generally, the “virtual common pot”, the agencies only fund the projects with national participation; on the other hand, the agencies that participate in activities in the network to support the launch of the Calls are financially compensated in proportion to the assigned activities; still, the costs related to the logistics of the management process for internal competitions are obviated; finally, the importance of being inside of the implementing systems of science policy proves to be a factor of decisive importance in the development of national science and innovation systems. For these reasons, we believe that assuming responsibilities of Programme Owner or, at least, of Programme Manager can prove to be of a remarkable usefulness for the national scientific community and for the institutions themselves.

In this context, and given the facts presented, we advocate the position that, in the STNS scenario, some institutions to take on Programme Manager responsibilities in the initiatives of the European Research Area may emerge, with the inherent described advantages.

Because ERA is a consistent venture of European Union, and its initiatives will continue to emerge and to be structurally supported, this issue should continue to be monitored, not only in institutional terms, but also academically, particularly if the assumption of Programme Manager functions by some organization of the STNS comes to be effectively implemented.

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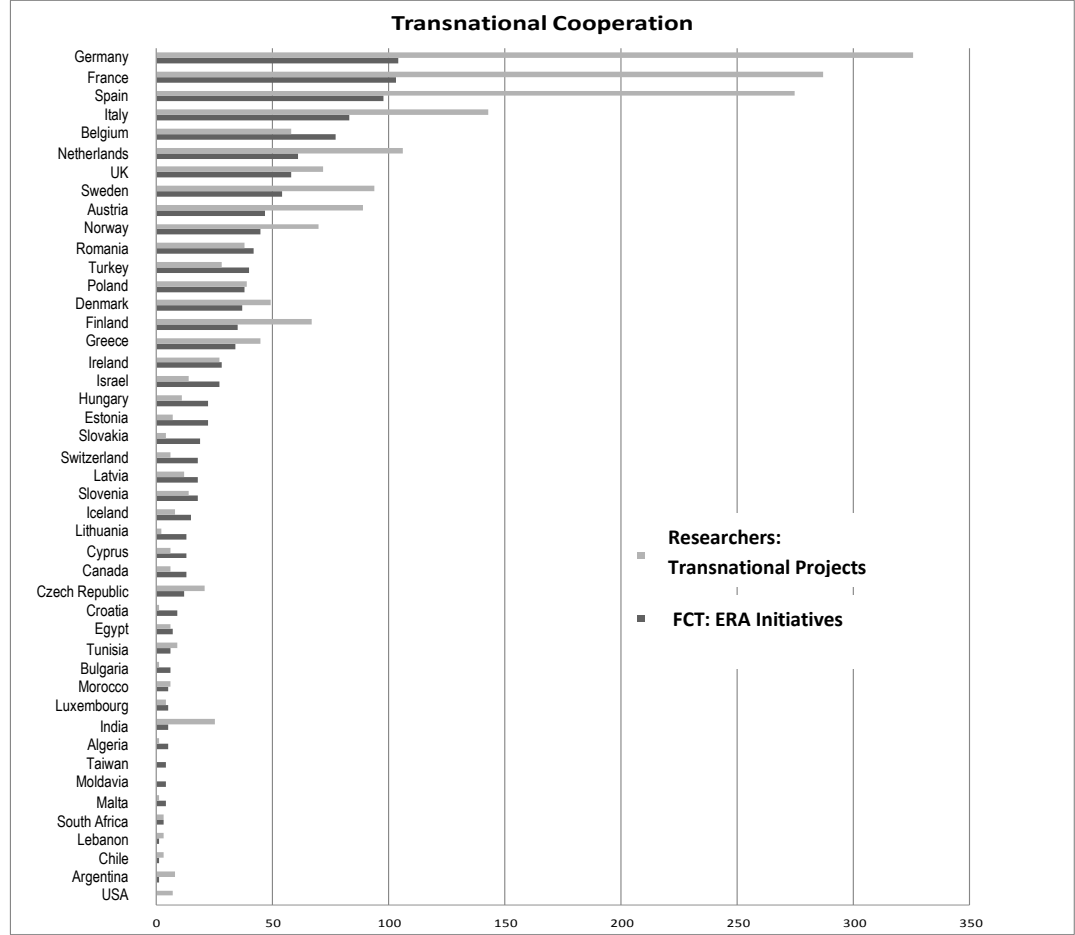
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## **Annexes**

- Annex I: interactions between FCT and its international counterparts, and interactions between Portuguese Researchers and their international counterparts
- Annex II: ERA initiatives, active in 2016, managed by DRI / FCT
- Annex III: initiatives in which each of the mentioned Programme Manager agencies participate
- Annex IV: implementation plan of an ERA-NET Cofund (Work Packages)
- Annex V: «Financial Plan» (Excel)
- Annex VI: «Financial Plan» (Fraction)

Annex I

Interactions between FCT and its international counterparts, and interactions between Portuguese Researchers and their international counterparts.



Source:  
DRI /FCT

## Annex II

### ERA Initiatives, active in 2016, managed by DRI / FCT

Initiative	Acronym	ERA-LEARN Areas	Sub-area (FCT)	Beginning Year	Comments
Interministerial Agreement	Plant-KBBE	Food, agriculture and fishery; biotechnology	Biotechnology	2006	
	Art.185	EDCTP-II	Health	Clinical Research	2014
CSA	EqUIP	Social Sciences and Humanities		2014	
	INTRAW	Raw materials	Mining engineering	2015	
	JHEP 2	Social Sciences and Humanities	Cultural Heritage	2016	
	JPstaiND	Health	Neurosciences - Systems, Clinics and Behavior	2016	
	ProSafe	Nanotechnology, nanosciences	Nanomaterials and Devices	2015	
	RINEA	Nonspecific		2015	
	T-AP	Social Sciences and Humanities		2013	
	WatEur CSA	Environment, sustainability	Estuarine Systems, Coastal and Coastlines	2013	
EJP	CONCERT	Health, environment	Public Health and Environmental Factors	2015	
ERA-NET	ARIMNET2	Biotechnology, environment, food, agriculture, fishery	Agricultural production	2013	
	CHIST-ERA	ICT		2015	
	COFASP	Food, agriculture, fishery	Marine Biotechnology, Fisheries and Aquaculture	2013	
	ERA-IB-2	Biotechnology, industrial production	Biotechnology	2012	
	ERA-MBT	Biotechnology, environment	Marine Biotechnology, Fisheries and Aquaculture	2013	
	ERANet-LAC	Latin America Cooperation		2013	
	ERANETMED	Energy		2013	
	EuroNanoMed II	Nanotechnology, nanomedicine	Biomedical engineering	2012	
	FLAG-ERA	Health, materials	Electronics and Computers	2013	
	INCOMERA	Nanotechnology, nanoscience, materials		2014	
	Infect-ERA	Health, biotechnology	Microbiology and Infection	2013	
	INNO INDIGO	Cooperation with India		2013	
	MANUNET II	Industrial production		2011	18 months extension
	Net-Biome	Biotechnology, environment, food, agriculture, fisheries, government, social, health, socio-economic sciences, humanities	Biodiversity and Conservation	2007	Only following the funded projects
	Norface	Socio-economic sciences, humanities		2009	
	OCEANERA-NET	Energy	Energy and Marine Technology	2013	
	BiodivERSA3	Environment, food, agriculture, fishery	Biodiversity and Conservation	2015	
	DemoWind	Energy	Electricity (Offshore Wind)	2015	Participation FAI
	ENSCC	Social sciences, humanities, energy	Urbanism	2015	Participation FAI
	ENSUF	Energy, environment, socio-economic sciences, humanities	Urban studies	2015	
ERA-NET Cofund	ERA4CS	Environment	Modelling and Environmental Assessment	2016	
	ERA-CVD	Health (Cardiovascular Diseases)	Mechanisms of disease	2015	Participation DGS
	ERA-PLANET	Environment; Space		2016	
	E-Rare-3	Health (Rare diseases)		2014	
	JPco-fuND	Health (Neurodegenerative Diseases)	Neurosciences, systems, clinics and behavior	2015	
	JPI-EC-AMR	Health (Antimicrobial Resistance)	Microbiology and Infection	2015	
	M-ERA.NET 2	Energy, industrial production, materials, nanotechnology, nanosciences		2016	
	NEURON Cofund	Health (diseases related to neuroscience)		2016	
	PhotonicSensing	Environment, food, agriculture, fisheries, health, materials, security and defense		2016	
	SG+	Energy		2015	Participation FAI
	SusAn	Food, Agriculture and Fishery		2016	
	TRANSCAN-2	Health	Translational Cancer Research	2015	
	WaterWorks2014	Environment	Estuarine Systems, Coastal and Coastlines	2015	
	WaterWorks2015	Environment	Estuarine Systems, Coastal and Coastlines	2016	
	HERA JRP UP	Socio-economic sciences, humanities		2015	
	HERITAGE PLUS	Cultural heritage, global change		2013	
	NEWA	Energy	Wind Energy	2014	
JPI - Joint Programming Initiatives	JPI Oceans	Biotechnology, energy, environment, food, agriculture, fisheries, materials, transport		2011	
	JPICH	Cultural heritage, global change		2014	
	JPND	Health		2012	
	JPI Water	Environment, sustainability		2011	
JTI - Joint Technology Initiatives	ECSEL	Electronic components and systems		2014	

Source: DRI / FCT

## Annex III

Organization	ERA Initiative(s)
DLR Projektträger (DE)	AirTN   BIODIVERSA   CIS-ERA   CIRCLE   EOWIN   ERA-AGE   ERA-SAGE   Neuron   WORK-IN-NET   ERA-HDHL   ERA-CVD   TRANSCAN2   E-RARE   JPco-fuND   BiodivERsA3   ERA.Net RUS   INNO INDIGO   ERA-Net-LAC   ERANETMED   CHIST-ERA
Projektträger Jülich (DE)	ACENET   BONUS   EMIDA   FENCO   SIINN   INNER   MARTEC   PV-ERA-NET   RURAGRI   M-ERA.NET   ACT   ERA-GAS   SusAn   WaterWorks2015   SmartGridPlus   ERACoSysMed   ERA-MBT   FACCE   Infect-ERA   SOLAR-ERA.NET   Geothermal ERA NET   ERA-IB-2
Deutsche Forschungsgemeinschaft (DE)	ERA-CAPS   FLAG-ERA   MNT   E-RARE   BiodivERsA3
Projektträger DESY (DE)	ASPERA   ASTRONET
Verein Deutscher Ingenieure (DE)	COMPERA   ERA-SPOT   EraSME   EuroNanoMed   VISION   BiophotonicsPlus   OLAE+
Austrian Institute of Technology (AT)	SIINN
Austrian Research Promotion Agency (AT)	AirTN   COMPERA   CORNET   BIOENERGY   ERA-SPOT   ERABUILD   ETB-PRO   EUROTRANS-BIO   SIINN   MNT   PV-ERA-NET   M-ERA.NET   ENSUF   SmartGridPlus   E-RARE   ENSCC   EUROTRANSBIO   ERA.Net RUS   ENTIII   OLAE+
Austrian Science Fund (AT)	BIODIVERSA   ERA-CHIMISTRY   PLANT GENOMICS   HERA   Neuron   NORFACE   BiodivERsA3   INNO INDIGO   CHIST-ERA
UEFISCDI (RO)	COMPERA   ERA-AGE   EuroNanoMed   M-ERA.NET   ACT   ENSUF   ERA-GAS   ERA4CS   Neuron   WaterWorks   FACCE SURPLUS   SmartGridPlus   E-RARE   ENSCC   BiodivERsA3   INCOMERA   ERA-MBT   ERA.Net RUS   ERA-Net-LAC   FLAG-ERA   COFASP   ERA-IB-2   MANUNET
National Earth Science Agency (IR)	ERA-MIN2
Environmental Protection Agency (IR)	BIODIVERSA   ERA-ENVHEALTH   ERA4CS
Veneto Nanotech, SCpA (IT)	EuroNanoMed
Radiation and Nuclear Safety Authority (FI)	EJP Concert

## Annex IV

<b>WP</b>	<b>Objectives</b>
<b>Consortium Coordination and Management</b>	<ul style="list-style-type: none"> <li>- to establish and run the executive structures of the consortium, as well as to conduct the administrative, legal and financial management according to the ERA-NET Cofund scheme rules; to attract new Member States, Associated Countries and third partner countries to enlarge the consortium (with special emphasis in organizations that fund innovation);</li> <li>- to supervise the day-to-day activities according to the implementation plan;</li> <li>- to represent the consortium towards EC, funding organizations and other initiatives.</li> </ul>
<b>Preparation, Launch and Implementation of the Co-funded Call (Call Office)</b>	<ul style="list-style-type: none"> <li>- to prepare, launch and implement a co-funded JTC with an open bottom-up approach;</li> <li>- to set-up the Call Office and the Call Steering Committee (CSC);</li> <li>- to prepare the call documents;</li> <li>- to set-up the electronic submission tool for the proposals;</li> <li>- to promote and launch the JTC in collaboration with other WPs leaders;</li> <li>- to coordinate the evaluation and proposal selection of the Co-funded Call.</li> </ul>
<b>Monitoring and assessment of the projects funded through the co-funded call</b>	<ul style="list-style-type: none"> <li>- to assess the results of the JTCs</li> <li>- to define the optimal list of indicators that will allow the consortium to monitor and assess the outputs of the funded research projects of the co-funded call;</li> <li>- to assess the outputs of the co-funded call through statistical analysis;</li> <li>- to improve the administrative and operational practices of the network partners.</li> </ul>
<b>Communication, Dissemination and Exploitation of the Co-funded Call</b>	<ul style="list-style-type: none"> <li>- to disseminate the launching of the co-funded call with especial focus on attracting participants of the new partners' countries and increasing the participation of the private sector in submitted proposals;</li> <li>- to communicate and disseminate the results of the co-funded call;</li> <li>- disseminate the accomplishments of the co-funded research projects among the scientific community and programme owners, with emphasis on actors that can facilitate translatability of the results of the projects.</li> </ul>
<b>Additional Joint Transnational Calls</b>	<ul style="list-style-type: none"> <li>- to set up the Joint Call Secretariat and the Call Steering Committee of the additional calls;</li> <li>- to prepare the call documents;</li> <li>- to set up the electronic submission tool for the proposals.</li> </ul>
<b>Monitoring and Evaluation of Activities Funded in the Consortium and Training of Funded researchers</b>	<ul style="list-style-type: none"> <li>- to assess the results of the calls for the purpose of evaluating their contribution towards the consortium objectives and ERA objectives.</li> </ul>
<b>Communication, Dissemination and Exploitation of Results from Non-co-funded Projects</b>	<ul style="list-style-type: none"> <li>- the activities of this WP focus on communication and dissemination of the additional calls, the results of other funded projects of the consortium, and the consortium activities.</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- to implement the relevant parts of the Strategic Research Agendas in the specific epistemic area, identifying the scientific research priorities in the field at national and regional levels;</li> <li>- to establish links with existing initiatives.</li> </ul>



## Annex VI

### Financial Plan (fraction)

Beneficiary no.	1	4	16	8	5
Beneficiary (Country)	Partner 1 (ES)	Partner 4 (FR)	Partner 16 (PT)	Partner 8 (IL)	Partner 5 (NO)
PM RATE – DIRECT COSTS	5.000,00	8.500,00	3.776,00	4.000,00	10.451,00
WP1 - Consortium Coordination and Management	50,00				
WP2 - Preparation, implementation of the co-funded call, and evaluation of proposals	1,25	16,00			
WP3 - Follow-up and monitoring of projects resulting from the co-funded Call			15,00		
WP4 - Communication, exploitation and dissemination of the results				12,00	
WP5 - Additional Joint Transnational Calls (JTC 2018, JTC 2019 and JTC 2020)	42,00	7,50			
WP6 - Monitoring and Evaluation of activities funded in the consortium and training of funded researchers		0,50	0,50		8,00
WP7 - Communication and dissemination of results from ENM non-co-funded projects and consortium activities				11,00	
WP8 – Strategy	1,00	14,00		1,00	
Basic Participation	2,00	2,00	2,00	2,00	2,00
TOTAL PM	96,25	40,00	17,50	26,00	10,00
TOTAL PM COSTS	481.250,00	340.000,00	66.080,00	104.000,00	104.510,00
TRAVEL*	15.000,00	15.000,00	15.000,00	15.000,00	15.000,00
TOTAL COSTS (PM + TRAVEL)/beneficiary	496.250,00	355.000,00	81.080,00	119.000,00	119.510,00
Expected EC reimbursement/beneficiary (Unit Costs + circa 33% reimbursement of national/regional funds committed in the co-funded call) = requested grant/beneficiary	1.007.459,00	152.405,00	123.904,67	215.743,00	215.743,00
Total costs/expected total EC reimbursement (% per beneficiary)	49,61%	232,93%	65,44%	55,16%	55,39%
Total EC Grant	5.000.007,00				
Total EC Unit Costs (UC) contribution	1.004.850,00				

\* Only if considered necessary

Financial Plan	
TOTAL PM Costs	1.495.157
TOTAL TRAVEL Costs	375.000
TOTAL MANAGEMENT COSTS	1.870.157,00
Expected EC Unit Costs (UC) contribution	1.004.850,00
Max expected EC Contribution for management costs (UC + PM)	2.500.007,00

WP: work package

PM: person / month

EC: European Commission

Source: «Financial Plan» (Annex V)